

## **ABSTRACT OF THE DISCLOSURE**

A semiconductor device and its manufacturing method. The semiconductor device has a semi-insulating GaAs substrate 310, a GaAs buffer layer 321 that is formed on the semi-insulating GaAs substrate 310, AlGaAs buffer layer 322, a channel layer 323, a spacer layer 324, a carrier supply layer 325, a spacer layer 326, a Schottky layer 327 composed of an undoped  $\text{In}_{0.48}\text{Ga}_{0.52}\text{P}$  material, and an  $\text{n}^+$ -type GaAs cap layer 328. A gate electrode 330 is formed on the Schottky layer 327, and is composed of  $\text{LaB}_6$  and has a Schottky contact with the Schottky layer 327, and ohmic electrodes 340 are formed on the  $\text{n}^+$ -type GaAs cap layer 328.